**Notebook Series -- Notebooks by Experimenters Other Than Edison**
**Chemical Experiments -- L. F. Ott Books**
**Notebook N-19-09-19**

This notebook was used by Ludwig F. (Louis) Ott and an unidentified experimenter during September 1918-August 1920 for notes on various chemical experiments carried out by Ott. Most of the experiments relate to chemical solutions used in the manufacture of storage batteries. There are also a few entries regarding disc records. The notes at the beginning of the book pertain to the determination of $Fe_2O_3$ (iron oxide) in $NiSO_4$ (nickel sulfate) saturated solution. Some of these entries include brief comments by Edison. Subsequent entries involve experiments on a caustic soda solution of $NiSO_4$ using various chemicals to hold the nickel hydroxide in solution. A loose note from Ott to Edison has been inserted into the book. The pages are unnumbered. Approximately 120 pages have been used.

Approximately one third of the book, including all of the entries with Edison notations, has been selected. Many of the unselected entries consist solely of calculations or data on test runs.

Book #1

205-35

9/29/19

Determination of $Fe_2O_3$ in $NiSO_4$, saturated solution.

25 c.c. satur. $NiSO_4$ sample

12.5523

12.5442

.0081 $Fe_2O_3$ in 25 c.c.

0.0324 gms. $Fe_2O_3$ in 100 c.c. $NiSO_4$

The $NiSO_4$ solution contains no copper.

20 grs of sample of Nickel?

3.9000

-.0700

3.8300 gms.

2.4470 - nickel anode - Experiment

32.0800

32.0788

.0012 Cu + Co?

Edison A - Special Run on
Sample # 87 -
2, 4, 6 & 10 gms Nickel Acetate used
with 250 c.c. Saturated $NiSO_4$.
No # 8/4 solution used on
the cathodes.
The current is 400 Milliamperes

1. - 1:20 P.M. Sept. 23 to 8.25 A.M. Sept. 24
a Run of 19 Hrs 5 min.

2. - 12.45 noon Sept 24 to 1.30 P.M. Sept. 24
a Run of 45 min.
Total = 19 Hrs. 50 minutes

3 - 5.35 P.M. Sept. 24 to 8.35 A.M. Sept. 25
a Run of 15 Hrs.
Total = 34 Hrs. 50 minutes

4. - 2.00 P.M. Sept. 25 to 5.05 Sept. 25
a Run of 3 Hrs. 5 minutes
Total = 37 Hrs. 55 minutes

5. - 12.50 noon Sept. 26 to 1.20 noon 9/26
a Run of 30 minutes
Total = 38 Hrs. 25 Min

6.- 5:30 P.M. Sept. 26 to
off 8 20 pm on again at
1130 pm for all night
note Amperes when you
Come in the morning
left them at 400
taken off at 8.05 A.M. Sept. 27.
320 M.A. reading at 8.05
A Run of 11 Hrs. 25 minutes
Total = 49 Hrs. 50 minutes.

7.-

22.2 c.c. $Na_2S_2O_3$ used
Sample = 10 c.c. Cu. $NH_4OH$
1 c.c. = .006491 Cu.

22.3

19473
12982
12982

.1447493 gm. Cu in 10 c.c.

25.7 c.c. $Na_2S_2O_3$ used
Sample = 10 c.c. Cu. $NH_4OH$
1 c.c. $Na_2S_2O_3$ = .006491 Cu

25.7

45437
32455
12982

10 c.c. = 0.1668187 Cu
% Cu = 1.67

Saturated $CuSO_4$ sol. = 1.2600 sp. Gr.
" $NiSO_4$ " = 1.3000 —

Caustic Soda Solution of $NiSO_4$ using Na Citrate to hold the nickel hydroxide in solution.

(1) 10 c.c. $NiSO_4$ (satur.) 0.5 gms. Na Citrate 2.0 c.c. NaOH (20%) used to neutralize and then 2.0 c.c. excess NaOH added. Not enough Citrate to hold the $Ni(OH)_2$ in solution.

(2) 10 c.c. $NiSO_4$ + 1.5 gms. Na Citrate + 2.0 c.c. NaOH (20%) used to neutralize & then 2.0 c.c. excess NaOH added Not enough Citrate to hold the $Ni(OH)_2$ in solution.

(3) 10 c.c. $NiSO_4$ + 2.5 gms. Na Citrate + 2.0 c.c. NaOH used to neutralize + then 2.0 c.c. excess added. The $Ni(OH)_2$ did not precipitate & a jelly was formed, insoluble in excess NaOH

(4.) 10 c.c. $NiSO_4$ + 3.0 gms. Na Citrate + 12.0 c.c. NaOH to neutralize + 12.0 c.c. excess NaOH.
No $Ni(OH)_2$ ppt. occurs at all, the solution is clear on standing about an hour it forms a clear jelly.

(5.) 10 c.c. $NiSO_4$ + 12.0 gms. Na Citrate + 12.0 c.c. NaOH to neutralize + 12.0 c.c. NaOH excess.
No $Ni(OH)_2$ ppt. forms. The solution does not jelly on standing.

A solution made up as per (4)
180 c.c. $NiSO_4$ (saturated)
72 c.c. NaOH (20%)
54 gms. Sodium Citrate

Caustic Soda solution of $NiSO_4$ using Mucic Acid to hold the Nickel Hydroxide in solution.

(1) 10 c.c. $NiSO_4$ (saturated) used + 1 gm. Mucic acid + excess NaOH.
Found 1 gm. Mucic acid to be insufficient to hold the $Ni(OH)_2$ in solution.

(2) 10 c.c. $NiSO_4$ used + 2 gms. Mucic acid + 7 c.c. NaOH to neutralize the solution + 14 c.c. NaOH to make the solution strongly alkaline.
(NaOH = 40%)
As soon as the excess NaOH was added the $Ni(OH)_2$ started to redissolve leaving a clear liquid.

10 c.c. $NiSO_4$
21 c.c. 10% NaOH.
31 c.c.) 250 c.c. (8
248

Solution made up as per (2)
80 c.c. $NiSO_4$ (Conc.)
168 c.c. NaOH (10%)
16 gms. Mucic acid

Caustic Soda solution of $NiSO_4$ using Pyrogallic acid to prevent the precipitation of Nickel hydroxide

(1.) 10 c.c. $NiSO_4$ + 1 gms. Pyrogallol
+ 7 c.c. NaOH (10%) to neutralize
+ 14 c.c. NaOH excess
When neutral the $Ni(OH)_2$ is ppted and dissolves when the excess NaOH is added but not completely.
(not enough Pyrogallol used)

(2) 10 c.c. $NiSO_4$ + 2 gms. Pyrogallol
+ 7 c.c. NaOH to neutralize
+ 14 c.c. NaOH excess
When neutral the $Ni(OH)_2$ is ppted but redissolves entirely on adding the 14 c.c. excess.

Solution made up as per (2)
80 c.c. $NiSO_4$ (Conc.)
168 c.c. NaOH (10%)
16 gms. Mucic acid.

2.016
32.060
64.

98.076

24.519 ) 1.027
0.25180
24519

066100
49038

170620
171633

$HC_2H_3O_2$
4
32
24

60.0

Standardization of N/10 $Na_2S_2O_3$.
N/2 $H_2SO_4$ 1 c.c. = 0.02518 gms.
or N/2 factor = 1.027
50 c.c. N/2 $H_2SO_4$ = 25.5 c.c. N/10 $Na_2S_2O_3$
10.27) 10.2700 (1.0069
10277
700
612
880

N/10 $Na_2S_2O_3$ = factor = 1.0069

50 c.c. N/2 $H_2SO_4$ diluted to 250 c.c.
& called 1.027 N/10 $H_2SO_4$
25.0 c.c. $H_2SO_4$ = 25.0 c.c. NaOH
∴ N/10 NaOH = 1.027 strength
using phenolphthalein.

N/10 Acetic Acid standardized with the N/10 NaOH (1.027) using phenolphthalein showed the Acetic Acid = N/10 1.027 $HC_2H_3O_2$

10 c.c. Acetic } = 12 c.c. Thiosulphate
+1.6 c.c. Iodine }

21.0 Iodine = 22.97 Na2S2O3
25.0 = 27.1
46.0 50.0

~~1.0069 x 20.0 = 46~~

~~46~~
~~60414~~
~~40276~~
~~146.3724~~
~~x2~~

2/10069
46/50345 (1.0945
~~46~~
434
414
205
184
210

Iodine value = 1.0945 N/10 I

1.0945
1.6
65670
10945
1.75120

~~1.027~~
~~12~~
~~12.324~~

~~1.0945~~
~~5475~~
7661
10945
10945
12.860375

1x0.27
1.75
1202

1.007
12
12.084

32.0867 33.0864
32.0773

$MnSO_4$ = 1.0094

.9012091 in 50 c.c.
.02018 2 in 1 c.c.
.36377
141274
141274
60546
121092
60546

.0073416061 4 Mn

13.2838
12.5434
.7404 x .64687 = .47894
$MnSO_4$ in 25 c.c.
0.0191576 gm $MnSO_4$ in 1 c.c.

N/10 $H_2SO_4$ = 1.0270
N/10 $Na_2S_2O_3$ = 1.0069
N/10 NaOH (Phen. Indicator) = 1.027
N/10 $HC_2H_3O_2$ (Phen. Indicator) = 1.027
N/10 Iodine = 1.0945

Each of the following 6 cells contains 250 c.c. Conc. $NiSO_4$, (Sp. Gr. 1.300) and in

#1 - There is 2 gms. Ni Acetate
#2 - " " 4 " "
#3 - " " 6 " "
#4 - " " 8 " "
#5 - " " 10 " "
#6 - " " 12 " "

300 X - 214
Oct. 24, 1919

Run #1 - at 300 mile Amperes. - 2.02 P.M. to 4.02

| | Weight of Anode | Weight of Cathode |
|---|---|---|
| #1 | 20.2000 | 31.8295 |
| | 19.7960 | 31.2505 |
| Loss in Wgt = | .4040 | Nickel plate = .5790 |
| #2 | 19.2730 | 22.8345 |
| | 19.1810 | 22.2652 |
| Loss in Wgt = | .0920 | Nickel plate .5693 |
| #3 | 19.0320 | 31.1090 |
| | 18.8840 | 30.5375 |
| Loss in Wgt = | .1480 | Nickel plate = .5715 |
| #4 | 31.0735 | 19.9715 |
| | 31.0076 | 19.3940 |
| Loss in Wgt = | .0659 | Nickel plate = .5775 |
| #5 | 32.6250 | 19.3638 |
| | 32.5967 | 18.7863 |
| Loss in Wgt = | .0283 | Nickel plate = .5775 |
| #6 | 19.0618 | 26.9670 |
| | 19.0180 | 26.3880 |
| Loss in Wgt = | .0438 | Nickel plate 0.5790 |

1st Run End

Oct. 25, 1919

Run #2 - at 300 Milliamperes 9.02 to 11.02

| | Wgt of Anode | Wgt of Cathode |
|---|---|---|
| | 19.7960 | 25.0000 |
| #1 | 19.3900 | 24.4270 |
| Loss in Wgt. = .4060 | | Nickel plate = .5330 |
| | 19.1810 | 27.0180 |
| #2 | 18.9500 | 26.4880 |
| Loss in Wgt. = .2310 | | Nickel plate = .5300 |
| | 18.8840 | 31.6222 |
| #3 | 18.6361 | 31.0822 |
| Loss in Wgt = .2479 | | Nickel plate = .5400 |
| | 31.0076 | 30.2155 |
| #4 | 30.8820 | 29.6720 |
| Loss in Wgt = .1256 | | Nickel plate = .5435 |
| | 32.5967 | 20.8000 |
| #5 | 32.5480 | 20.2600 |
| Loss in Wgt = .0487 | | Nickel plate = .5400 |
| | 19.0180 | 23.3960 |
| #6 | 18.9420 | 22.8410 |
| Loss in Wgt = .0760 | | Nickel plate = 0.5550 |

2nd Run Entered 1924

Oct. 27, 1919

Run #3 - at 300 Milliamperes 9.39 to 11.39

| | Wgt of Anode | Wgt of Cathode |
|---|---|---|
| #1 | 18.9500 | 23.7790 |
| | 18.5000 | 23.2280 |
| Loss in Wgt. = .4500 | | Nickel plate = .5510 |
| | 19.3900 | 24.7510 |
| #2 | 18.7700 | 24.2340 |
| Loss in Wgt = .6200 | | Nickel plate = .5170 |
| | 18.6361 | 25.0410 |
| #3 | 18.1250 | 24.5020 |
| Loss in Wgt = .5111 | | Nickel plate = .5390 |
| | 30.8820 | 27.2130 |
| #4 | 30.6120 | 26.6900 |
| Loss in Wgt = .2700 | | Nickel plate = .5230 |
| | 32.5480 | 27.3280 |
| #5 | 32.4071 | 26.8300 |
| Loss in Wgt = .1409 | | Nickel plate = .4980 |
| | 18.9420 | 27.0682 |
| #6 | 18.7200 | 26.5710 |
| Loss in Wgt = .2220 | | Nickel plate = .4972 |

3rd Run

X

Oct. 27, 1919

Run #4 - at 300 Milliamperes 11.45 to 1.45 P.M.

| | Wgt of Anode | Wgt. of Cathode | |
|---|---|---|---|
| #1 | 12.8270 | 19.2180 | |
| | 12.4580 | 18.7100 | |
| Loss in Wgt = | .3690 | Nickel plate = | .5080 |
| #2 | 16.7850 | 20.6085 | |
| | 16.3766 | 20.1025 | |
| Loss in Wgt = | .4084 | Nickel plate = | .5060 |
| #3 | 14.2260 | 23.1444 | 4th Run |
| | 13.8900 | 22.6326 | |
| Loss in Wgt = | .3360 | Nickel plate = | .5118 |
| #4 | 19.4600 | 26.1850 | |
| | 19.2070 | 25.7200 | |
| Loss in Wgt = | .2530 | Nickel plate = | .4650 |
| #5 | 21.9110 | 27.1660 | |
| | 21.7028 | 26.7160 | |
| Loss in Wgt = | .2082 | Nickel plate = | .4500 |
| #6 | 13.0050 | 26.5630 | |
| | 12.8390 | 26.0880 | |
| Loss in Wgt = | .1660 | Nickel plate = | .4750 |

Oct 27, 1919

Run #5 - at 300 M.A. 2.12 P.M. to 4.12 P.M.

| | Wgt of Anode | Wgt of Cathode | |
|---|---|---|---|
| #1 | 18.7700 | 25.1380 | |
| | 18.1200 | 24.6130 | |
| Loss in Wgt = | .6500 | Nickel plate = | .5190 |
| #2 | 18.5000 | 27.2720 | 5th |
| | 18.0060 | 26.7930 | |
| Loss in Wgt = | .4940 | Nickel plate = | .4790 |
| #3 | 18.1250 | 26.5260 | |
| | 17.7580 | 26.0240 | |
| Loss in Wgt = | .3670 | Nickel plate = | .5020 |
| #4 | 30.6120 | 19.2500 | |
| | 30.2500 | 18.7860 | |
| Loss in Wgt = | .3620 | Nickel plate = | .4640 |
| #5 | 32.4071 | 32.8650 | |
| | 32.1350 | 32.4000 | |
| Loss in Wgt = | .2721 | Nickel plate = | .4650 |
| #6 | 18.7200 | 22.3345 | |
| | 18.3465 | 21.8630 | |
| Loss in Wgt = | .3735 | Nickel plate = | .4715 |

X

Oct. 28, 1919

Run #6 - 300 M.A. 8 55 A.M. to 10.55 A.M.

| Wgt. of Anode | Weight of Cathode |
|---|---|
| 12.4580 | 26.9950 |
| 11.9500 | 26.4900 |
| Loss in Wgt. = .5080 | Nickel plate = .5050 |
| 16.3766 | 22.9800 |
| 15.9020 | 22.5200 |
| Loss in Wgt. = .4746 | Nickel plate = .4600 |
| 13.8900 | 23.1870 |
| 13.4640 | 22.7100 |
| Loss in Wgt. = .4260 | Nickel plate = .4770 |
| 19.2070 | 30.7070 |
| 18.8185 | 30.2460 |
| Loss in Wgt. = .3885 | Nickel plate = .4610 |
| 21.7028 | 27.4010 |
| 21.3400 | 26.9860 |
| Loss in Wgt. = .3628 | Nickel plate = .4150 |
| 12.8390 | 25.6670 |
| 12.5400 | 25.2140 |
| Loss in Wgt. = .2990 | Nickel plate = .4530 |

Oct. 28, 1919

Run # 7 - 300 M.A. 11.37 A.M. to 1.37 P.M.

| Wgt. of Anode | Wgt. of Cathode |
|---|---|
| 18.1200 | 30.9580 |
| 17.5450 | 30.4550 |
| Loss in Wgt. = .5750 | Nickel plate = .5030 |
| 18.0060 | 23.1460 |
| 17.4900 | 22.6882 |
| Loss in Wgt. = .5160 | Nickel plate = .4578 |
| 17.7580 | 28.2650 |
| 17.1500 | 27.8000 |
| Loss in Wgt. = .6080 | Nickel plate = .4650 |
| 30.2500 | 20.3900 |
| 29.8450 | 19.9350 |
| Loss in Wgt. = .4050 | Nickel plate = .4350 |
| 32.1350 | 27.1000 |
| 31.8000 | 26.6800 |
| Loss in Wgt. = .3350 | Nickel plate = .4200 |
| 18.3465 | 27.0340 |
| 17.9250 | 26.5900 |
| Loss in Wgt. = .4215 | Nickel plate = .4440 |

X

Oct. 28, 1919

Run #8 - 300 M.A. 1.55 P.M. To 3:55 P.M.

| Wgt. of Anode | Wgt. of Cathode |
|---|---|
| 11.9500 | 19.5615 |
| 11.4115 | 19.0500 |
| Loss in Wgt. = .5385 | Nickel plate = .5115 |
| 15.9020 | 18.9062 |
| 15.3930 | 18.4220 |
| Loss in Wgt. = .5090 | Nickel plate = .4842 |
| 13.4640 | 22.9500 |
| 12.9530 | 21.8731 |
| Loss in Wgt. = .5110 | Nickel plate .4769 |
| 18.8185 | 20.4150 |
| 18.3500 | 19.9550 |
| Loss in Wgt. = .4685 | Nickel plate = .4600 |
| 21.3400 | 31.5820 |
| 20.9065 | 31.1350 |
| Loss in Wgt. = .4335 | Nickel plate = .4470 |
| 12.5400 | 18.9057 |
| 12.1400 | 18.4630 |
| Loss in Wgt. = .4000 | Nickel plate = .4427 |

Oct. 29, 1919

Run #9 - 300 M.A. 9.02 A.M. To 11.02

| Wgt of Anode | Wgt of Cathode |
|---|---|
| #1 17.5450 | 21.6440 |
| 17.0672 | 21.1690 |
| Loss in Wgt. = .4778 | Nickel plate = .4750 |
| #2 17.4900 | 30.4670 |
| 17.0650 | 30.0140 |
| Loss in Wgt. = .4250 | Nickel plate .4530 |
| #3 17.1500 | 30.3050 |
| 16.8580 | 29.8410 |
| Loss in Wgt. = .2920 | Nickel plate .4640 |
| #4 29.8450 | 27.9870 |
| 29.4870 | 27.5365 |
| Loss in Wgt = .3580 | Nickel plate .4505 |
| #5 31.8000 | 29.4600 |
| 31.4880 | 29.0180 |
| Loss in Wgt .3120 | Nickel plate = .4420 |
| #6 17.9250 | 22.6990 |
| 17.5720 | 22.2335 |
| Loss in Wgt. = .3530 | Nickel plate = .4655 |

Oct. 29, 1919

Run #10 - 300 M.A. 11.05 to 1.08

| Wgt. of Anode | Wgt. of Cathode |
|---|---|
| 11.4115 | 24.9540 |
| 10.9925 | 24.5000 |
| Loss in Wgt. .4190 | Nickel plate = .4540 |
| 15.3930 | 28.3968 |
| 14.9910 | 27.9720 |
| Loss in Wgt. .4020 | Nickel plate = .4248 |
| 12.9530 | 30.8170 |
| 12.4820 | 30.3630 |
| Loss in Wgt. .4710 | Nickel plate = .4540 |
| 18.3500 | 22.2560 |
| 17.8660 | 21.8030 |
| Loss in Wgt. .4840 | Nickel plate = .4530 |
| 20.9065 | 30.1760 |
| 20.3680 | 29.7370 |
| Loss in Wgt. .5385 | Nickel plate = .4390 |
| 12.1400 | 25.1100 |
| 11.6750 | 24.6540 |
| Loss in Wgt. .4650 | Nickel plate = .4560 |

Oct. 29, 1919

Run #11 - 300 M.A. 1.45 P.M. to 3.45

| Wgt. of Anode | Wgt. of Cathode |
|---|---|
| #1 17.0672 | 25.2536 |
| 16.5400 | 24.8126 |
| Loss in Wgt. .5272 | Nickel plate = .4360 |
| #2 17.0650 | 29.2180 |
| 16.6020 | 28.7926 |
| .4630 | .4254 |
| #3 16.8580 | 22.4651 |
| 16.3150 | 22.0551 |
| .5430 | .4100 |
| #4 29.4870 | 24.3550 |
| 29.0550 | 23.9600 |
| .4320 | .3950 |
| #5 31.4880 | 22.0456 |
| 31.1300 | 21.6470 |
| .3580 | .4016 |
| #6 17.5720 | 29.5231 |
| 17.1940 | 29.1046 |
| .3780 | .4185 |

Oct. 30, 1919

Run #12 - 300 M.A. 9.07 a.m. to 11.07 a.m.

| | Wgt of Anode | Wgt of Cathode |
|---|---|---|
| #1 | 10.9925 | 22.0140 |
| | 10.6415 | 21.5960 |
| | Loss in Wgt: .3510 | Nickel plate = .4180 |
| #2 | 14.9910 | 24.5500 |
| | 14.6450 | 24.1700 |
| | .3460 | .3800 |
| #3 | 12.4820 | 28.2130 |
| | 12.1225 | 27.8270 |
| | .3595 | .3860 |
| #4 | 17.8660 | 28.2667 |
| | 17.5245 | 27.8825 |
| | .3415 | .3842 |
| #5 | 20.3680 | 21.7238 |
| | 20.0385 | 21.3500 |
| | .3295 | .3738 |
| #6 | 11.6750 | 28.2463 |
| | 11.3880 | 27.8320 |
| | .2870 | .4143 |

12th

Oct. 30, 1919

Run #13 - 300 M.A. 11.10 to 1.10 P.M.

| | Wgt of Anode | Wgt. of Cathode |
|---|---|---|
| #1 | 16.5400 | 28.6450 |
| | 16.0425 | 28.2405 |
| | Loss in Wgt: .4975 | Nickel plate = .4045 |
| #2 | 16.6020 | 29.8770 |
| | 16.1715 | 29.5030 |
| | .4305 | .3740 |
| #3 | 16.3150 | 24.5625 |
| | 15.8685 | 24.1820 |
| | .4465 | .3805 |
| #4 | 29.0550 | 20.9590 |
| | 28.6675 | 20.5800 |
| | .3875 | .3790 |
| #5 | 31.1300 | 20.8500 |
| | 30.7870 | 20.4853 |
| | .3430 | .3647 |
| #6 | 17.1940 | 21.2940 |
| | 16.8410 | 20.8825 |
| | .3530 | .4115 |

13th

Oct. 30, 1919.

Run #14 - 300 M.G. 1.44 P.D. To 3.44

| Wgt. of Anode | Wgt. of Cathode |
|---|---|
| 10.0715 | 28.5694 |
| #5 10.1770 | 28.1500 |
| Loss in Wgt. = .4055 | Nickel plate = .4194 |
| 14.6450 | 25.3900 |
| #2 14.1880 | 25.0050 |
| .4620 | .3850 |
| 17.1225 | 22.0300 |
| #3 11.6940 | 21.6560 |
| .4285 | .3740 |
| 17.5245 | 24.9045 |
| #4 17.0717 | 24.5490 |
| .4528 | .3555 |
| 20.0385 | 27.9220 |
| #5 19.5480 | 27.5620 |
| .4905 | .3600 |
| 11.3880 | 28.9910 |
| #6 10.9410 | 28.5900 |
| .4470 | .4010 |

Oct. 31, 1919

Run #15 300 M.G. 8.55 A.M. To 10.55

| Wgt. of Anode | Wgt. of Cathode |
|---|---|
| #1 16.0425 | 28.2980 |
| 15.4490 | 27.8320 |
| Loss in Wgt. = .5935 | Nickel plate = .4660 |
| 16.1715 | 29.9270 |
| #2 15.6090 | 29.5010 |
| .5625 | .4260 |
| 15.8685 | 25.3390 |
| #3 15.3215 | 24.9400 |
| .5470 | .3990 |
| 28.6675 | 25.3200 |
| #4 28.1440 | 24.9550 |
| .5235 | .3650 |
| 30.7870 | 28.7424 |
| #5 30.2960 | 28.3450 |
| .4910 | .3974 |
| 16.8410 | 30.2700 |
| #6 16.3570 | 29.8650 |
| .4840 | .4050 |

Oct. 31, 1919

Run #16 - 300 M.A. 11.07 To 1.07

| | Wgt. of Anode | Wgt. of Cathode |
|---|---|---|
| | 10.1770 | 28.4960 |
| #1 | 9.6790 | 28.0400 |
| Loss in wgt. = .4980 | | Nickel plate = .4560 |
| #2 | 14.1830 | 28.3415 |
| | 13.6960 | 27.8915 |
| | .4870 | .4500 |
| #3 | 11.6940 | 28.3812 |
| | 11.2235 | 27.9760 |
| | .4705 | .4052 |
| #4 | 17.0717 | 29.4980 |
| | 16.5980 | 29.0800 |
| | .4737 | .4180 |
| #5 | 19.5480 | 24.7650 |
| | 19.0560 | 24.3920 |
| | .4920 | .3730 |
| #6 | 10.9410 | 21.1445 |
| | 10.4885 | 20.7460 |
| | .4525 | .3985 |

16 ok

Oct. 31, 1919

Run # 17 - 300 M.A. 1.42 to 3.42 P.M.

| | Wgt. of Anode | Wgt. of Cathode |
|---|---|---|
| | 15.4490 | 31.2133 |
| #1 | 14.8520 | 30.7185 |
| Loss in Wgt. = .5970 | | Nickel plate = .4948 |
| #2 | 15.6090 | 28.5640 |
| | 15.0850 | 28.1100 |
| | .5240 | .4540 |
| #3 | 15.3245 | 27.9000 |
| | 14.7680 | 27.4600 |
| | .5565 | .4400 |
| #4 | 28.1440 | 24.8370 |
| | 27.6690 | 24.4220 |
| | .4750 | .4150 |
| #5 | 30.2960 | 24.4175 |
| | 29.8630 | 24.0100 |
| | .4330 | .4075 |
| #6 | 16.3570 | 25.4140 |
| | 15.8955 | 24.9900 |
| | .4615 | .4240 |

17th

Nov. 1, 1919

Run #18 - 300 M.A. 8.45 A.M. to 10.45

| | Wgt. of Anode | Wgt. of Cathode |
|---|---|---|
| #1 | 9.6790 | 20.9975 |
| | 9.2100 | 20.5140 |
| | Loss in Wgt. = .4690 | Nickel plate = .4835 |
| #2 | 13.6960 | 28.8890 |
| | 13.2400 | 28.4150 |
| | .4560 | .4740 |
| #3 | 11.2235 | 28.9132 |
| | 10.8000 | 28.4730 |
| | .4235 | .4402 |
| #4 | 16.5950 | 24.7410 |
| | 16.1140 | 24.3070 |
| | .4840 | .4340 |
| #5 | 19.0560 | 19.1965 |
| | 18.5800 | 18.7770 |
| | .4760 | .4195 |
| #6 | 10.4885 | 21.5100 |
| | 10.0585 | 21.1050 |
| | .4300 | .4050 |

18th

Nov. 3, 1919

Run #19 - 300 M.A. 9.05 A.M. to 11.05

| | Wgt. of Anode | Wgt. of Cathode |
|---|---|---|
| #1 | 14.8520 | 28.7425 |
| | 14.5085 | 28.3484 |
| | Loss in Wgt. = .3435 | Nickel plate = .3941 |
| #2 | 15.0850 | 31.4950 |
| | 14.8180 | 31.0805 |
| | .2670 | .4145 |
| #3 | 14.7680 | 24.9070 |
| | 14.4280 | 24.4950 |
| | .3400 | .4120 |
| #4 | 27.6690 | 18.7780 |
| | 27.3970 | 18.3600 |
| | .2720 | .4180 |
| #5 | 29.8630 | 28.2170 |
| | 29.6340 | 27.8377 |
| | .2290 | .3793 |
| #6 | 15.8955 | 28.3575 |
| | 15.6237 | 27.9760 |
| | .2718 | .3815 |

19th

Room temp. = 74° F. all Cell temps = 74° F

Voltage of Cells in order = 2.9 - 3.0 - 3.25 - 3.20 - 3.0 - 3.10

Nov. 3, 1919

Run #20 - 300 M.A. 11:18 to 1:18 P.M.

| | Wgt. of Anode | Wgt. of Cathode |
|---|---|---|
| #1 | 14.8830 | 19.2140 |
| | 14.3800 | 18.8045 |
| | Loss in Wgt. = .5030 | Nickel plate = .4095 |
| #2 | 13.2400 | 20.7340 |
| | 12.9020 | 20.3290 |
| | .3380 | .4050 |
| #3 | 10.8000 | 25.7720 |
| | 10.4720 | 25.4110 |
| | .3280 | .3610 |
| #4 | 16.1140 | 26.0840 |
| | 15.7520 | 25.7675 |
| | .3620 | .3165 |
| #5 | 18.5800 | 26.2480 |
| | 18.1790 | 25.8890 |
| | .4010 | .3550 |
| #6 | 19.6980 | 25.2300 |
| | 19.1930 | 24.8497 |
| | .5050 | .3803 |

Room temp. 76°F Cell temps in order = 76° - 76° - 76.5° - 77.0° - 77.5° - 78° Voltage = 3.0 - 2.8 - 3.1 - 3.0 - 3.0 - 3.

20

Nov. 3, 1919.

Run #21 - 300 M.A. 1.35 P.M. to 3.35

| | Wgt. of Anode | Wgt. of Cathode |
|---|---|---|
| #1 | 14.5085 | 28.3010 |
| | 14.0600 | 27.8740 |
| | Loss in Wgt. = .4485 | Nickel plate = .4270 |
| #2 | 14.8180 | 22.1726 |
| | 14.3680 | 21.8400 |
| | .4500 | .3326 |
| #3 | 14.4280 | 27.4077 |
| | 13.9200 | 27.0250 |
| | .5080 | .3827 |
| #4 | 27.3970 | 31.1090 |
| | 26.9535 | 30.7330 |
| | .4435 | .3760 |
| #5 | 29.6340 | 24.9457 |
| | 29.2500 | 24.5950 |
| | .3840 | .3507 |
| #6 | 15.6237 | 24.7440 |
| | 15.2553 | 24.3740 |
| | .3684 | .3700 |

21

Room temp = 77°F Cell temps = 77 - 77.5 - 78 - 78.5 - 79 - 79.5 °F = Voltage = 2.9 - 2.9 - 3.0 - 3.0 - 3.0 - 3.0

GHJ

Nov. 4, 1919

Run #22 . 300 M.A. 8.35 to 10.35
Voltage = 2.8 - 2.8 - 2.9 - 2.8 - 2.8 - 2.8
Temp. °F = 81 - 81 - 81 - 81.5 - 83 - 83
Room temp = 78° F

Run #23 - 300 M.A. 10.50 A.M. to 12.50
Voltage = 2.8 - 2.8 - 3.0 - 3.0 - 2.9 - 2.9
Temp °F = 78 - 78 - 78 - 78 - 78 - 77
Room temp = 74° F

Run #24 - 300 M.A. 1.22 P.M. to 3.22
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 79 - 79 - 79 - 79 - 79 - 78.5
Room temp = 78° F

Nov. 5, 1919

Run #25 - 300 M.A. 8.43 A.M. to 10.43
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 76 - 76 - 76 - 76 - 76 - 76
Room temp = 72° F

Run #26 - 300 M.A. 10.57 to 12.57
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 76 - 76 - 76 - 76 - 76 - 76
Room temp = 74° F
Not - 8/4 used on this Run

Nov. 5, 1919

Run # 27 - 300 M.A. 1.06 to 3.06 P.M.
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 76 - 76 - 76 - 76 - 76 - 76
Room Temp = 74° F

Run #28 - 300 M.A. 3.06 - 5.06 P.M.
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 76 - 76 - 76 - 76 - 76 - 76
Room temp = 73° F

Nov. 6, 1919

Run #29 - 300 M.A. 8.35 A.M. to 10.35
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 78° - 78° - 78° - 78° - 79° - 79°
Room Temp = 74° F

Run # 30 - 300 M.A. 10.35 to 12.35
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 78 - 78 - 78 - 78 - 78 - 78
Room temp = 74.5° F

Run # 31 - 300 M.A. 1.08 to 3.08
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 78 - 78 - 78 - 78 - 78 - 78
Room temp = 76° F

Nov. 6, 1919

Run #32 - 300 M.A. 3.15 to 5.15
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 78 - 78 - 78 - 78 - 78 - 78
Room Temp = 73 °F
Note - 8/4 Sol. used in this Run.

Nov. 7, 1919

Run #33. 300 M.A. 8.45 A.M. to 10.45
Voltage = 3.0 - 3.0 - 3.0 - 3.0 - 3.0 - 3.0
Temp °F = 78 - 78 - 78 - 78 - 78 - 78
Room Temp = 72 °F

Run #34. 300 M.A. 10.45 to 12.45
Voltage = 3.0
Temp °F = 78°
Room temp = 74° F

Run #35 - 300 M.A. 12.45 to 2.45
Voltage = 3.10
Temp °F = 78°
Room temp = 74° F

Run #36 - 300 M.A. 2.45 to 4.45
Voltage = 3.10
Temp °F = 78°
Room Temp = 74° F

Nov. 8, 1919

Run #37 - 300 M.A. 8.35 AM. to 10.35
Voltage - 3.0
Temp °F - 76° F
Room temp = 75°
Note - 8/4 Sol. used in this Run

Nov. 10, 1919

Run #38 - 300 M.A. 8.38 A.M. to 10.38
Voltage - 3.2 - 3.3 - 3.3 - 3.3 - 3.3 - 3.3
Temp °F = 77° - 77° - 77° - 77° - 77° - 77°
Room temp = 76° F

Run #39 - 300 M.A. 10.38 to 12.38
Voltage = 3.2
Temp °F = 79°
Room temp = 78° F

Run #40 run same as all runs up to #22, giving look in wgt of anode & wgt of nickel plate.

[45]

Run #40 - 300 M.A. 1.13 to 3.13 P.M.

| | Wgt. of Anode | Wgt. of Cathode |
|---|---|---|
| | 19.8160 | 30.6750 |
| #1 | 19.3250 | 30.3400 |
| Loss in wgt. = | .4910 | Nickel plate = .3350 |
| #2 | 17.5690 | 30.6070 |
| | 17.0150 | 30.2770 |
| | .5540 | .3290 |
| #3 | 19.9370 | 20.2500 |
| | 19.6220 | 19.9500 |
| | .3150 | .3000 |
| #4 | 18.8000 | 31.1160 |
| | 18.4650 | 30.8240 |
| | .3350 | .2920 |
| #5 | 32.3700 | 25.4190 |
| | 32.0000 | 25.0670 |
| | .3700 | .3520 |
| #6 | 16.6330 | 22.3740 |
| | 16.3660 | 22.0720 |
| | .2670 | .3020 |

4 ft
vol

Voltage = 3.1 - 3.1 - 3.1 - 3.1 - 3.1 - 3.1
Temp °F = 82° - 82° - 82° - 82° - 82° - 82°
Room Temp = 81° F

Run #41 - 300 M.A. - 3.15 P.M. to 5.15 P.M.
Voltage = 3.1 _____
Temp °F = 81° - 81° _____
Room temp = 78° F.

Nov. 11, 1919

Run #42 - 300 MA - 8.38 A.M. to 10.38
Voltage = 3.0 _____
Temp °F = 80° _____
Room temp = 79°

Run #43 - 300 M.A. 10.38 - to 12.38
Voltage = 3.0 _____
Temp °F = 80° _____
Room temp = 78°

Run #44 - 300 M.A. 12.38 to 2.38
Voltage = 3.0 _____
Temp °F = 80° _____
Room temp = 78° F

Run #45 - 300 M.A. - 12:00 to 4.50
Voltage = 3.0
Temp °F = 79°
Room temp = 76°F
Note = 8/4 sol. used.

Nov. 12, 1919

Run #46 - 300 M.A. - 8.32 A.M. to 10.32
Voltage = 3.0
Temp °F = 79°
Room temp = 80°

Run #47 - 300 M.A. - 10:32 to 12:32
Voltage = 3.0
Temp °F = 79°
Room temp = 79°

Run #48 - 300 M.A. 12:32 to 2.32
Voltage = 3.0 - 3.0 - 1.8 - 1.8 - 2.3 - 1.8
Temp °F = 78.5°
Room temp = 78°
note put on another set of batteries

Run #49 - 300 M.A. 2:32 to 4:32
Voltage = 3.0
Temp °F = 78°
Room temp = 78°F

Nov. 13, 1919

Run #50 - 300 M.A. - 8.35 A.M. to 10.35
Voltage = 3.1
Temp °F = 86°
Room temp = 81°F
Note = 8/4 solution used.

Run #51 - 300 M.A. - 10.45 A.M. to 12.45
Voltage = 3.2
Temp °F = 76°
Room temp = 72°

Run #52 - 300 M.A. - 12.45 to 2.45
Voltage = 3.1
Temp °F = 74°
Room temp = 69°F

Run #53 - 300 M.A. - 2.45 to 4.45
Voltage = 3.1
Temp °F = 72°
Room temp = 68°F

Nov. 14, 1919

Run #54 - 300 M.A. - 8.40 A.M. to 10.40
Voltage = 3.10
Temp °F = 77.5°
Room temp = 75°F

Run #55 - 300 M.A. - 11.9 M. to 1 P.M.
Voltage = 3.1
Temp °F = 78°
Room temp = 76°F
Note:- 8/4 Sol. used in this Run.

Run #56 - 300 MA. - 1.05 P.M. to 3.05
Voltage = 3.1
Temp °F 78°
Room temp = 76° F.

Nov. 15, 1919

Run #57 - 300 MA. - 8.30 A.M. to 10.30
Voltage = 3.1
Temp °F = 77°
Room temp = 74° F.

Nov. 17, 1919

Run #58 - 300 M.A. - 8.50 A.M. to 10.50
Voltage = 3.0
Temp °F = 81°
Room temp = 81°F

Run #59 - 300 M.A. - 10.50 to 12.50
Voltage = 3.0
Temp °F = 82°
Room temp = 81° F

Nov. 17, 1919

Run #60 - 300 MA. - 12.52 A.M. to 2.52

| | Wgt of Anode | Wgt of Cathode |
|---|---|---|
| #1 | 19.3130 | 27.1370 |
| | 18.8370 | 26.7060 |
| | Loss in Wgt: .4760 | Nickel plate = .4310 |
| #2 | 16.9965 | 26.6585 |
| | 16.3900 | 26.2570 |
| | .6065 | .4015 |
| #3 | 19.6200 | 26.7620 |
| | 19.2644 | 26.3850 |
| | .3556 | .3770 |
| #4 | 18.4614 | 26.5240 |
| | 18.0990 | 26.1540 |
| | .3624 | .3700 |
| #5 | 31.9940 | 24.5740 |
| | 31.5770 | 24.1995 |
| | .4170 | .3745 |
| #6 | 16.3610 | 26.6840 |
| | 16.0000 | 26.3230 |
| | .3610 | .3610 |

Run #60 - Voltage = 3.0
Temp °F = 83°
Room temp = 79°F.

Run #61 - 300 M.A. - 3.0 P.M. to 5.00 P.M.
Voltage = 3.0
Temp °F = 83°
Room temp = 78°
Nov. 18, 1919

Run #62 300 M.A. - 8.40 to 10.40
Use this run I am using 8/4 solution & the cathode in cell #1 is made of brass instead of Cu to see how the nickel will strip from brass.
Voltage = 3.0
Temp °F = 82°
Room temp = 80°F

Run #63 - 300 M.A. - 10.50 A.M. to 12.50
Voltage = 3.0
Temp °F = 82°
Room temp = 80°F

Run #64 - 300 M.A. 12.50 to 2.50
Voltage = 3.1
Temp °F = 81°
Room temp = 79°F

Run #65 - 300 M.A. 2.50 to 4.50
Voltage = 3.1
Temp °F = 80°
Room temp = 78°F
Nov. 19, 1919

Run #66 - 300 M.A. 8.20 AM to 10.20
Voltage = 3.0
Temp °F = 75°
Room temp = 72°F

Run #67 - 300 M.A. 10.20 AM to 12.20
Voltage = 3.0
Temp °F = 75°
Room temp = 70°F
Note = 8/4 solution used in this Run.

Run #68 - 300 M.A. - 12.25 to 2.25
Voltage = 3.0

Run #69 - 300 M.A. 2.25 to 4.25
Voltage = 3.0

Nov. 20, 1919

Run # 70 - 300 M.A. - 8.30 to 10.30
Voltage =
Temp. 71°
Room temp =

Run # 71 - 300 M.A. - 10.30 to 12.30
Run # 72 - 300 M.A. - 12.30 to 2.30

Run No 73 - 300 M.A. - 2.35 to 4.35

Nov. 21, 1919

Run # 74 - 300 M.A. - 8.30 to 10.30
Run # 75 10.30 to 12.30
Run # 76 12.30 to 2.30

Run # 77 - 300 MA 2.35 to 4.35
8/4 sol. used on this Run.

Nov. 25, 1919.

Run # 78 - 300 M.A. 8.35 to 10.35
Run # 79 - 300 MA. 10.35 to 12.35
Run # 80 - 300 MA 12.35 to 2.35
Run # 81 - 300 MA. 2.35 to 4.35

Nov. 26, 1919

Run # 82 - 300 M.A. 8.45 A.M. to 10.45
8/4 sol. used on this Run.

Run # 83 - 300 M.A. - 11.05 A.M. to 1.05
Run # 84 - 300 M.A. - 1.05 to 3.05
Run # 85 - 300 M.A. - 3.05 to 5.05

Nov. 29, 1919

Run # 86 - 300 M.A. - 8.30 A.M. to 10.30

Dec. 1, 1919

Run # 87 - 300 M.A. - 8.42 to 10.42
~~8/4 sol. used on this Run.~~

Run # 88 - 300 MA.
Run # 89 - 300 MA.
Run # 90 - 300 MA.
} The 1 ryms. panel was not on on these Runs due to a special cell being placed in its place.

Dec. 2, 1919

Run # 91 - 300 M.A. - 8.45 to 10.45
8/4 solution used on this Run
Run # 92 - 300 MA. 11.05 to 1.05
Run # 93 - 300 MA. 1.05 to 3.05
~~Run # 94 - 300 MA. 3.05 to 5.05~~

[ITEM(S) FOUND IN BOOK]

Mr. Edison

Report on 4 barrels of Nickel Sulphate from the Prise Record Plant.

Barrel # 25 100g contains .00208 Cu = .0111 g Cu per Liter if made up into your regular Ni plating solution

Barrel # 26 100g contains .00208 Cu = .0411 g Cu per Liter.

Barrel # 27 100 grams contains .0041 Cu = .0217 g Cu per Liter

Barrel # 28 100 grams contains .00208 Cu = .0111 g Cu per Liter.

Ok JAE